IN THE CLAIMS

Please amend the claims as follows:

1. (Previously Presented) An apparatus for edge detection, comprising:

- means for receiving an image signal;
- first means for detecting whether a second derivative of the image signal crosses zero;
- second means for detecting, in response to a positive result from the first means for detecting, whether a first derivative of the image signal is greater than a first threshold;
- third means for detecting, in response to a positive result from the second means for detecting, whether an indication of an edge frequency ~~is~~ meets a predetermined criterion; and
- means for supplying an edge identification in response to a positive result from the third means for detecting.

2. (Previously Presented) The apparatus of claim 1, wherein:

- the image signal comprises a luminance signal;
- the indication of the edge frequency is a ratio between a third derivative of the luminance signal and a first derivative of the luminance signal; and

- the predetermined criterion is whether the ratio is greater than a threshold.

3. (Original) The apparatus of claim 2, wherein the third derivative is low-pass as a result of being calculated from a low-pass second derivative.

4. (Original) The apparatus of claim 1, wherein the image signal results from a vertical scan of an image, and the edge identification corresponds to a horizontal edge.

5. (Original) The apparatus of claim 1, wherein the image signal results from a horizontal scan of an image, and the edge identification corresponds to a vertical edge.

6. (Original) The apparatus of claim 1, wherein the image signal comprises a luminance signal and the second derivative is a low-pass second derivative.

7. (Original) The apparatus of claim 1, wherein the image signal is a luminance signal and the first derivative is a low-pass first derivative.

8. (Previously Presented) The apparatus of claim 1, wherein the means for receiving, first means for detecting, second means for detecting, third means for detecting, and means for supplying comprise a computer readable medium embodying code adapted to effect the operations.

9. (Previously Presented) The apparatus of claim 1, wherein the means for receiving, first means for detecting, second means for detecting, third means for detecting, and means for supplying comprise at least one hardware unit adapted to perform the operations.

10. (Previously Presented) The apparatus of claim 9, wherein the at least one hardware unit comprises a separate respective hardware unit adapted to perform each of the detecting operations.

11. (Original) The apparatus of claim 1, wherein the image is a video image and the image signal is a luminance signal.

12. (Original) The apparatus of claim 1, wherein the second derivative is a low pass second derivative resulting from a convolution between a second derivative operator and an operator corresponding to a low pass filter.

13. (Previously Presented) The apparatus of claim 12, wherein the operator corresponding to the low pass filter is of the form [1, 2, …, m, …, 2, 1], where m is an integer variable relating to an up-scaling factor applied to the image signal prior to edge detection.

14. (Previously Presented) The apparatus of claim 13, wherein an operator corresponding to the low pass second derivative is of the form [-1, 0, 0, 0, 2, 0, 0, 0, -1].

15. (Previously Presented) The apparatus of claim 1, wherein the first derivative is a low-pass derivative resulting from a convolution between a derivative operator and an operator corresponding to a low pass filter.

16. (Original) The apparatus of claim 1, further comprising an edge linking unit.

Claims 17-19 Cancelled.

20. (Previously Presented) A method for edge detection, comprising the steps of:

- receiving an image signal;
- performing a first detection detecting whether a second derivative of the image signal crosses zero;
- in response to a positive result from the first detection, performing a second detection detecting whether a first derivative of the image signal is greater than a first threshold;
- in response to a positive result from the second detection, performing a third detection detecting whether an indication of an edge frequency meets a predetermined criterion; and
- supplying an edge identification in response to a positive result from the third detection.

21. (Original) The method of claim 20, wherein

- the image signal comprises a luminance signal;
- the indication of the edge frequency is a ratio between a third derivative of the luminance signal and a first derivative of the luminance signal; and
- the predetermined criterion is that the ratio is greater than a threshold.

22. (Original) The method of claim 21, wherein the third derivative is low-pass as a result of being calculated from a low-pass second derivative.

23. (Original) The method of claim 20, wherein the image signal results from a vertical scan of an image, and the edge identification corresponds to a horizontal edge.

24. (Original) The method of claim 20, wherein the image signal results from a horizontal scan of an image, and the edge identification corresponds to a vertical edge.

25. (Original) The method of claim 20, wherein the image signal comprises a luminance signal and the second derivative is a low-pass second derivative.

26. (Original) The method of claim 20, wherein the image signal is a luminance signal and the first derivative is a low-pass first derivative.

27. (Previously Presented) The method of claim 20, wherein the steps are performed by code embodied on a computer readable medium.

28. (Previously Presented) The method of claim 20, wherein the steps are performed by at least one hardware unit.

29. (Previously Presented) The method of claim 29, wherein the at least one hardware unit comprises a separate respective hardware unit adapted to perform each of the detecting steps.

30. (Original) The method of claim 20, wherein the image is a video image and the image signal is a luminance signal.

31. (Original) The method of claim 20, wherein the second derivative is a low pass second derivative resulting from a convolution between a second derivative operator and an operator corresponding to a low pass filter.

32. (Previously Presented) The method of claim 31, wherein the operator corresponding to the low pass filter is of the form [1, 2, ..., m, ..., 2, 1], where m is an integer variable relating to an up-scaling factor applied to the image signal prior to edge detection.

33. (Previously Presented) The method of claim 32, wherein an operator corresponding to the low pass second derivative is of the form [-1, 0, 0, 0, 2, 0, 0, 0, -1].

34. (Previously Presented) The method of claim 20, wherein the first derivative is a low pass derivative resulting from a convolution between a derivative operator and an operator corresponding to a low pass filter.

35. (Previously Presented) The method of claim 20, further comprising linking at least two identified edges.

Claims 36-39 Cancelled.

40. (Previously Presented) The apparatus of claim 12, wherein the low pass filter is of the form [1, 1, 1, …, 1].